UNITED STATES PATENT AND TRADEMARK OFFICE

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10/600,727	06/20/2003	Douglas L. Sandy	IS01194MCG	5874

23330 7590 03/30/2007	EXAMINER
MOTOROLA, INC. LAW DEPARTMENT 1303 E. ALGONQUIN ROAD SCHAUMBURG, IL 60196	ELALLAM, AHMED

ART UNIT	PAPER NUMBER
2616	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>20 June 2003</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *12-19* is/are allowed.

6)☒ Claim(s) *1,5-11 and 20-31* is/are rejected.

7)☒ Claim(s) *2-4* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 June 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *   c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Specification

1.   The disclosure is objected to because of the following informalities:

On page 5, line 23, the numeral character designating 309 designating first

transceiver port should be changed to 305 as indicated in line 19.

On page 14, line 11 "FIG.2" should be changed to "FIG.3".

Appropriate correction is required.

Information Disclosure Statement

2.   The information disclosure statement filed 0620/2003 fails to comply with 37 CFR

1.98(a)(1), which requires the following: (1) a list of all patents, publications,

applications, or other information submitted for consideration by the Office; (2) U.S.

patents and U.S. patent application publications listed in a section separately from

citations of other documents; (3) the application number of the application in which the

information disclosure statement is being submitted on each page of the list; (4) a

column that provides a blank space next to each document to be considered, for the

examiner's initials; and (5) a heading that clearly indicates that the list is an information

disclosure statement. The information disclosure statement has been placed in the

application file, but the information referred to therein has not been considered.

In particular, form PTO-1449 is not provided.

Drawings

3.   The drawings are objected to because numeral character 304 designating the second node is not shown as indicated in the specification, page 6, line 28. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4.   Claims 1, 5-9 are rejected under 35 U.S.C. 102(e) as being anticipated by

Kadambi et al, US 2003/0016628 A1. Hereinafter referred to as Kadambi.

Regarding claim 1, Kadambi discloses a method comprising:

Providing a network switch 100 (claimed first node), a remote network device

(claimed second node) 110 (figure 1), a channel is shown between the second node

and the network switch, (claimed providing a distributed switch fabric network having a

first node and a second node coupled to exchange a plurality of packets over a

channel), see paragraph [0017], receiving a message indicating congestion at one

priority queue of a port of the remote network device (claimed plurality of packets are

divided into a plurality of priority levels of packets; detecting a congestion condition of

one of the plurality of priority levels of packets in the second node); halting the transfer

of data destined for the one priority queue from the switch to the remote network device,

(claimed reporting the congestion condition of the one of the plurality of priority levels of

packets to the first node; the first node suspending transmission of the one of the

plurality of priority levels of packets over the channel to the second node) and after the

congestion at the one priority queue abates, data destined for the one priority queue is

sent to the network device, see paragraph [0017], [0020], [0023], (claimed the first

node suspending transmission of the one of the plurality of priority levels of packets

over the channel to the second node), Kadambi further discloses that when the ingress

port of the switch is no more congested, the switch sends a control frame indicating the

congestion is clear, see [0133]; (claimed detecting a clear condition of the one of the

plurality of priority levels of packets in the second node; reporting the clear condition of

the one of the plurality of priority levels of packets to the first node); and after the

congestion at the one priority queue abates, data destined for the one priority queue is

sent to the network device, see paragraph [0017], [0020], [0023] (claimed resuming

transmission of the one of the plurality of priority levels of packets from the first node to

the second node).

Regarding claim 5, Kadambi discloses that when the switch ingress port is no

longer congested the switch sends a control frame indicating the congestion is clear,

and upon reception of that frame, the Server 1310 resumes sending traffic from the

relevant priority queue(s). See [0133]. (Claimed allowing the plurality of packets other

than the one of the plurality of priority levels of packets to continue to the second node

over the channel).

Regarding claim 6, Kadambi discloses the first node has a plurality of port and

the second node has a plurality of port, each port is capable of transmitting and

receiving data information, each port having a plurality of priority queues. Kadambi

further discloses detecting congestion at one priority queue of the plurality of priority

queues. See paragraph [0013]. (Claimed first node comprises a first node transceiver

port and the second node comprises a second node transceiver port, and wherein

detecting the congestion condition comprises the second node transceiver port

detecting the congestion condition).

Regarding claim 7, Kadambi discloses sending a channel message to the other

network device connected to the network device after the detection of a congestion at

one priority queue at the network device causing data destined for the one priority

queue to be halted. See paragraph [0013]. (Claimed reporting the congestion condition comprises the second node transceiver port reporting the congestion condition to the first node transceiver port).

Regarding claim 8 and 9, Kadambi discloses that after the congestion at the one priority queue has abated, a virtual channel resume message is sent to the other network device. Paragraph [0013]. Kadambi further discloses that the device has means for sending and receiving the virtual channel message to other network devices. See paragraph [0023]. (Claimed detecting the clear condition comprises the second node transceiver port detecting the clear condition as in claim 8, and reporting the clear condition comprises the second node transceiver port reporting the clear condition to the first node transceiver port, as in claim 9).

5.   Claims 20-22, 24-28 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Erimli, US 6,980,520.

Regarding claim 20, with reference to figures 1-3, Erimli discloses a method comprising:

A first node 180B and a second node 180A coupled to exchange a plurality of frames over a channel in a distributed switch fabric network, see figure 3, (claimed providing a first node, wherein the first node is coupled to exchange a plurality of packets with a second node over a channel in a distributed switch fabric network);

Erimli discloses the plurality of frames having low and height priority, see column 5, lines 34-41, (claimed the plurality of packets are divided into a plurality of priority levels of packets);

Erimli discloses output control queues 240 may include a FIFO-type output

queue corresponding to each of the transmit modules in the transmitter 210. Each of the

output queues may include multiple priority queues for frames having different levels of

priority, see column 5, lines 29-46. (Claimed the first node generating the plurality of

priority levels of packets for transmission to the second node over the channel, and

separating each of the plurality of priority levels of packets into each of a plurality of

transmit buffers, wherein each of the plurality of transmit buffers corresponds to one of

the plurality of priority levels of packets); Erimli further discloses an internal rules

checker (IRC) 245, the IRC 245 that includes an internal decision making engine that

makes frame forwarding decisions for data packets that are received by the receiver

205. The IRC 245 also output its forwarding decision to the PVQ 235 in the form of a

forwarding descriptor. See column 5, lines 47-60. The forwarding descriptor may

include, for example, a priority class identifying whether the data frame is high priority or

low priority, see column 6, lines 7-13. (Claimed scheduling transmission of the plurality

of priority levels of packets to the second node over the channel, wherein scheduling

selects which of the plurality of priority levels of packets from each of the plurality of

transmit buffers are transmitted to the second node).

Regarding claim 21, Erimli discloses a transmitter at the node 180B (claimed first

node) the transmitter having output ports, see column 4, lines 56-60. Erimli further

disclose the IRC 245 determines that a given data frame should be output by either a

single port multiple ports all ports. See column 5, lines 47-60. (Claimed the separating

and the scheduling occurring separately at each first node transceiver port).

Regarding claims 24 and 30, Erimli discloses the node 180A having plurality of

output control queues 240 may include a FIFO-type output queue corresponding to

each of the transmit modules in the transmitter 210. Each of the output queues may

include multiple priority queues for frames having different levels of priority, see column

5, lines 29-46. (Claimed the second node distinguishes between a plurality of priority

levels of packets, the second node comprising a plurality of receive buffers, wherein

each of the plurality of receive buffers corresponds to one of the plurality of priority

levels of packets).

Regarding claim 25, with reference to figures 1-3, Erimli discloses a method

comprising:

A first node 180 (figure 1) and a second node 180 (opposite node in figure 1)

coupled to exchange a plurality of frames over a channel in a distributed switch fabric

network, see figure 1, (claimed providing a first node, wherein the first node is coupled

to exchange a plurality of packets with a second node over a channel in a distributed

switch fabric network);

Erimli discloses the plurality of frames having low and height priority, see column

5, lines 34-41, (claimed the plurality of packets are divided into a plurality of priority

levels of packets); Erimli further discloses receiver 205 at the node 180 (claimed first

node) including plurality of receive modules, the receive modules may include input

ports and proprietary interfaces for expansion with other multiport switches, each of the

receive modules may include queuing logic that receives data packets from the network

stations 110 and/or network node 150 and stores the packets in the corresponding

receive FIFOs. The queuing logic may then send portions of the packets to the IRC 245

(internal rules checker) for processing, see column 4, lines 39-55. (Claimed the first

node receiving the plurality of priority levels of packets; separating each of the plurality

of priority levels of packets into each of a plurality of receive buffers, wherein each of

the plurality of receive buffers corresponds to one of the plurality of priority levels of

packets); Erimli further discloses an internal rules checker (IRC) 245, the IRC 245

includes an internal decision making engine that makes frame forwarding decisions for

data packets that are received by the receiver 205. The IRC 245 also output its

forwarding decision to the PVQ 235 in the form of a forwarding descriptor. See column

5, lines 47-60. The forwarding descriptor may include, for example, a priority class

identifying whether the data frame is high priority or low priority, see column 6, lines 7-

13. (Claimed scheduling processing of the plurality of priority levels of packets by the

first node, wherein scheduling selects which of the plurality of priority levels of packets

from each of the plurality of receive buffers are processed by the first node).

Regarding claim 26, Erimli discloses a transmitter at the node 180B (claimed first

node) the transmitter having output ports, see column 4, lines 56-60. Erimli further

disclose the IRC 245 determines that a given data frame should be output by either a

single port multiple ports all ports. See column 5, lines 47-60. (Claimed the separating

and the scheduling occurring separately at each first node transceiver port).

Regarding claim 27, Erimli discloses the multiport switch selectively suspend

data traffic only from a designated source (congesting source), while the switch

continue receiving data frames having other source addresses. See column 11, lines

35-39. (Claimed scheduling comprises selecting the plurality of priority levels of packets from any of the plurality of receive buffers of each first node transceiver port).

Regarding claims 22 and 28, as indicated above claim 20, Erimli discloses node 180 A (claimed second node) having plurality of transmit buffer associated with different priorities of packets, (claimed the second node distinguishes between the plurality of priority levels of packets), Erimli discloses multiport switch 180B receives a pause frame relating to the source of the congestion, the multiport switch 180B may then suspend transmissions to multiport switch 180A of data frames with this same source address for the period of time defined by the pause time parameter in the parameters field pause frame (claimed first node resuming transmission upon a clear condition of the one of the plurality of priority levels of packets at the second node), see column 10, lines 57-65. (Claimed the first node suspending transmission of one of the plurality of priority levels of packets over the channel to the second node upon a congestion condition of the one of the plurality of priority levels of packets at the second node; and the first node resuming transmission of the one of the plurality of priority levels of packets over the channel to the second node upon a clear condition of the one of the plurality of priority levels of packets at the second node).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.   Claim 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Kadambi in view of Knight et al, WO 00/11841. Hereinafter referred to as Knigth.

Regarding claim 10, Kadambi discloses a method comprising:

Providing a network switch 100 (claimed first node), a remote network device

(claimed second node) 110 (figure 1), a channel is shown between the second node

and the network switch, (providing a distributed switch fabric network having a first node

and a second node coupled to communicate over a channel), see paragraph [0017], the

network device has a plurality of ports, with each port of the plurality of ports having a

plurality of priority queues, (claimed at least the first node distinguishes between a

plurality of priority levels of packets), Kadambi also discloses that congestion at one

priority queue of the plurality of priority queues is detected , a virtual channel message

is sent to other network devices connected to the network device causing data destined

for the one priority queue to be halted. (Claimed if the second node distinguishes

between the plurality of priority levels of packets: the first node suspending transmission

of one of the plurality of priority levels of packets over the channel to the second node

upon a congestion condition of the one of the plurality of priority levels of packets at the

second node), and after the congestion at the one priority queue has abated, a virtual

channel resume message is sent to the other network devices, (claimed the first node

resuming transmission of the one of the plurality of priority levels of packets over the

channel to the second node upon a clear condition of the one of the plurality of priority

levels of packets at the second node), see paragraph [0013].

Kadambi doesn't specify, if the second node fails to distinguish between the

plurality of priority levels of packets: the first node suspending transmission of all of the

plurality priority levels of packets over the channel to the second node upon the

congestion condition at the second node; the first node resuming transmission of all of

the plurality of priority levels of packets over the channel to the second node upon the

clear condition at the second node. (This limitation is interpreted that there is only one

high priority traffic at the congested node given that the all the plurality priority levels of

packets are the same).

However, Knigth in the same field of endeavor of data flow control between ports

of adjacent switches, discloses temporary storing of low priority data from a transmitting

node to the receiving node upon a congestion in the receiving node.

Therefore, it would have been obvious to a person of ordinary skill in the art, at

the time the invention was made to halt all the low priority traffic upon congestion at the

receiving node (switch) of Kadambi as taught by Knigth so that preference to higher

priority traffic is given access to the switch prior to any lower priority level packets. A

person of skill in the art would be motivated to do so by recognizing the need to

implement the QoS inherent to the packets of Kadambi given the attached priority

indicator in each received packet prior to the transmission.

Regarding claim 11, Kadambi discloses each network device (either remote

device or switch) has a plurality of ports, with each port of the plurality of ports having a

plurality of priority queues, see paragraph [0013]. (Claimed the second node comprising

at least one of: a plurality of transmit buffers, wherein each of the plurality of transmit

buffers corresponds to one of the plurality of priority levels of packets; and a plurality of

receive buffers, wherein each of the plurality of receive buffers corresponds to one of

the plurality of priority levels of packets).

7.   Claims 23 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Erimli in view of Knigth.

Regarding claims 23 and 29, Erimli doesn't specify, if the second node fails to

distinguish between the plurality of priority levels of packets: the first node suspending

transmission of all of the plurality priority levels of packets over the channel to the

second node upon the congestion condition at the second node; the first node resuming

transmission of all of the plurality of priority levels of packets over the channel to the

second node upon the clear condition at the second node. (This limitation is interpreted

that there is only one high priority traffic at the congested node given that the all the

plurality priority levels of packets are the same).

However, Knigth in the same field of endeavor of data flow control between ports

of adjacent switches, discloses temporary storing of low priority data from a transmitting

node to the receiving node upon a congestion in the receiving node.

Therefore, it would have been obvious to a person of ordinary skill in the art, at

the time the invention was made to halt all the traffic upon congestion at the transmitting

port of Erimli as taught by Knigth so that switches that do not support auto-negotiation

protocols can be used in the network Erimli, the advantage would be the ability to use

the flow congestion between a mixture of switches including the ones lacking auto-

negotiation capability.

8.   Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kadambi

in view of Tagore-Brage et al, US 2002/0172205. Hereinafter referred to as Tagore-

Brage.

Regarding claim 31, Kadambi discloses a method comprising:

Providing a network switch 100 having a plurality of ports, each port including a

plurality of priority queues), (claimed first node having a first node receiver port) see

paragraph [0013], the network switch receiving a plurality of priority packet from a

remote network device (claimed second node) 110 (figure 1), (a channel implicitly exist

between the remote network device and the switch), (claimed the first node receiver

port receiving a plurality of packets from a second node over a channel in a distributed

switch fabric network, wherein the plurality of packets are divided into a plurality of

priority levels of packets, and wherein each of the plurality of receive buffers

corresponds to one of the plurality of priority levels of packets), see paragraph [0017],

each device has means for detecting congestion at one priority queue of the plurality of

priority queues and means for sending and receiving a virtual channel message

indicating congestion at the one priority queue or other priority queue of other network

devices connected to the network device. See paragraph [0020]. (Claimed detecting a

congestion condition of one of the plurality of priority levels of packets in the second

node); Kadambi further discloses the device includes means for selectively sending

data destined for the one priority queue or other priority queue based on the virtual

channel message and means for sending and receiving a virtual channel resume

message, (claimed the congestion condition is not for the highest priority level of

packets the second node suspending transmission of the one of the plurality of priority

levels of packets to the first node); the means for sending and receiving a virtual

channel resume message reads on the claimed detecting a clear condition of the one of

the plurality of priority levels of packets in the second node; and resuming transmission

of the one of the plurality of priority levels of packets to the first node.

Kadambi while discloses sending data to specific queues of the first node based

on the priority and resuming transmission after a clear condition of the receiving node in

the one of the plurality of priority levels of packets [0017], it doesn't specify if the

congestion condition is for a highest priority level of packets, the transmitting device

(claimed second node) suspending transmission of all of the plurality of priority levels of

packets to the first node receiver port.

However,Tagore-Brage in the same field of endeavor of flow control in packet

switching, discloses prioritizing higher traffic over lower traffic during normal conditions

[0025], and [0040] and stopping transfer of data packets or frames from all queues to at

least one of the outputs. (Claimed second node suspending transmission of all of the

plurality of priority levels of packets to the first node receiver port).

Therefore, it would have been obvious to a person of ordinary skill in the art, at

the time the invention was made to modify the selective stopping of data transmission of

Kadambi in halting all the traffic from the transmitting node regardless of the priority

traffic as taught by Tagore-Brage so to alleviate the potential congestion of lower level

traffic at the receiving node. The advantage would be another level of prioritization

added to that of Kadambi by reserving the processing resources for higher priority traffic

at the receiving node upon the clear condition.

Allowable Subject Matter

9.   Claims 12-19 are allowed.

10.   Claims 2-4 are objected to as being dependent upon a rejected base claim, but

would be allowable if rewritten in independent form including all of the limitations of the

base claim and any intervening claims.

Conclusion

11.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure: see Form PTO-892.

        Any inquiry concerning this communication or earlier communications from the

examiner should be directed to AHMED ELALLAM whose telephone number is (571)

272-3097. The examiner can normally be reached on 9-5:30.

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AHMED ELALLAM
Examiner
Art Unit 2616
3/28/07

SEEMA S. RAO   3/29/07
SUPERVISORY PATENT EXAMINER
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